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ABSTRACT

This presentation describes the distance education program at Memorial University (Newfoundland), which operates the Telemedicine Centre, including an audiographic, teleconference network that uses a combination of hardware and software to turn an MS DOS computer into an interactive long distance blackboard. Topics covered by the presentation include: (1) the distance education set-up at Memorial University, including the role of the Telemedicine Centre within the distance education framework of the university; (2) teleconference programs, 40% of which are health related; (3) print and teleconferencing in distance education at Memorial University; (4) the history of distance education at Memorial from the mid-1960s to the present; (5) institutional considerations, including broadening activities to include delivery outside the university curriculum; (6) support mechanisms and academic counselling for students; (7) management and staffing; (8) the importance of uniformity of technology; (9) support provided by instructors as content experts and providers; (10) course design, course selection, learner environment, and availability of libraries; and (11) program evaluation. (ALF)

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Distance Education at Memorial University of Newfoundland
by Ms. Erin Keough, Director, Telemedicine Centre

I can see why I have been invited along here today, aside from Professor Lalor's usual gracious hospitality in allowing me to come down to these lovely, warm countries from my northern climate. I think perhaps our University is set along a path probably quite similar to that which is going to be taken by the University of the West Indies. We have a similar type of application. Despite the fact that we look fairly well off to some countries, by Canadian standards Newfoundland as a Province is probably trying to address some of the same socioeconomic problems that are being addressed here as well.

I propose in my chat today to give you a little background by telling you where I come from and what we do. And then I am going to talk a little bit about some of the general issues of education that all distance educators have to address. Dr. Irvine seemed to touch on a lot of them in his opening remarks. During the next couple of days I am sure you are going to find that the seven of eight of us who are here as presenters address the same concerns in different kinds of ways. So I am not going to talk in any fashion about the right or wrong, or address any of those kinds of issues. I am simply going to relate how we address our problems as a group at Memorial University.

Memorial University Teleconference Network

To start, then, let me tell you a little bit about what we are. Like UWIDITE, we are an audio-graphic, teleconference network. I come from a unit that has the unlikely name in distance education of "Telemedicine". We started our history trying to address some of the very professional development issues that Professor Lalor was talking about with isolated professionals in the Province.

Our network started with 13 sites. We now have 160. Like UWIDITE we started with one single, dedicated, audio network. By September, we will have seven regional circuits. These circuits can be mixed and matched as the programme requires. There are two circuits in the eastern end of our Province, two in the centre, two in the west, and one in our northern region.

In addition to our dedicated facilities, we also have a dial access facility with 16 incoming lines. These dial access telephone lines can be added into our dedicated conference as needs be. We have some sites that have an educational requirement, but do not have the use pattern that warrants them being on a dedicated facility. We also use our dial access equipment for bringing other resource people into our programmes, and for joining ourselves to other networks, such as the University of the West Indies, for shared programming.

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As I mentioned earlier, we are an audio-graphic network. Our principal audio-graphic tool in the education arena is the telewriter. Many of you are probably familiar with the unit. For those who may not be, it is a combination of hardware and software that turns an MS DOS computer into an interactive long distance blackboard. And because it is an MS DOS computer, in addition to free-hand capacity, you can also have a graphics component.

Unlike the University of the West Indies, our geographical coverage is large. We have 150,000 square miles of space, and a total of about a half a million people spread in communities here, there and everywhere. The capital itself has only 120,000 people. Our sites range down to community sizes of maybe only 200 people. Also, unlike the West Indies, we have a miserable, awful winter -- as in most of Canada. Some of our sites are in locations that are reached only by boat or helicopter.

Geography and economics dictated an audio-type teleconferencing network, as opposed to some of the other kinds of distance education technologies that work in other situations. Our network of sites is overseen by coordinators who are not tutors. They are strictly administrators.

Distance Education set-up at Memorial University

Telemedicine's role in the distance education framework of the University is that of designing and delivering the audio-based activities. The University has a School of Continuing Studies and Extension. The Division of Continuing Studies and the Division of Educational Technology provide the other distance components to the university environment.

Educational Technology has a very sophisticated video production plant: a studio, editing suites, cameramen, graphic artists,etc. On the other side of the School of Continuing Studies, there is the administrative group that identifies the faculty, liaises with the faculty chairmen, puts all the courses in the field, and has a field staff to support these activities.

The teleconferencing network, which is the principal functional unit of the Telemedicine division, is actually a user consortium. The university is one very significant player in that consortium. However, there is the whole medical field from nurses, doctors, food service workers, to ambulance drivers. We also support the community college activities, distance high school activities in the Province, and a number of other institutions in the education field.

Teleconference Programmes

To give you some idea, last year the teleconferencing network carried 4500 hours of programmes. About 40% of our programming is health related. About half of what the health people do is teaching, and that comes directly through our unit; another 30% of what they do is concerned with activities of an administrative kind - the Department of Health perhaps meeting with some of its field staff, the Hospital Association updating people, labour negotiations, things of that nature. Only about 20% of what the health people do is actually patient care, and is primarily related to transmission of medical data. It is in the health arena that we use slow scan television for transmission of X-rays. And there are other areas of audio-graphic medical data transmission that I won't go into here.

Roughly 60% of what we do is actually in distance education for general distance teaching groups. The University pretty well occupies our network from 4 o'clock in the evening until 10 o'clock at night. There is an increasing high school programme, spearheaded by the Department of Education. We have, as you can imagine with a very small and scattered population, a number of very small, rural high schools in which it is very difficult to get an advanced high school curriculum that, in turn, allows those students to enter the post-secondary institutions. We have completed the development of the high school Math programme and we have now started the development of Physics and French -- aiming at having the five core courses required for University entrance in a distance mode.

Other groups include the Marine Institute, which does a significant amount of programming for those involved in marine occupations, primarily those related to fishing.

With the emphasis these days on literacy and functional literacy, we have started cooperating with our community colleges in the production of a distance delivery literacy training programme for tutors of literacy. We have also just completed a pilot on what is referred to at home as adult basic education, which is in reality grades 7, 8 and 9 science and math for people who would have perhaps left their formal education before they should have; and now with an increasing orientation towards computer-based technology - the information age - need to have more skills in that area and certainly want to acquire more formal qualifications.

Distance Education at Memorial University

In the ideal world then, we consider ourselves to be a multi-media group. I think in the university setting the backdrop, or the backbone of what we do is in print. It is supported in varying degrees by teleconferencing. Some university courses have a significant teleconference component of one and one-half hours a week. Some, which are more like a correspondence course, have perhaps only four interactive

sessions during the year, which are not compulsory. We like to say that we pick the best medium to get the message across.

Like everyone else we are also subject to the usual constraints. Costs, always a factor; availability of instructors in a dual mode institution (you certainly don't want to be in the position of having to rob Peter to pay Paul to get your distance education programmes delivered); political situations - it remains a struggle to convince everybody that distance education is not a second class approach, and that you can indeed get an entire university degree off campus. Our University has not yet accepted the fact that one can do a complete degree off campus. At this point in time you have to have at least the equivalent of two summer school sessions on one of the University campuses. And there are also other political situations related to the need to provide education sometimes a bit faster than perhaps we might like to.

History of Distance Education at Memorial

So this is where we stand. How we got there perhaps might shed a little light on something that Dr. Irvine asked me to do, which was to try and respond to the sort of questions that might be of interest to people namely, "What kinds of problems have you had, and what did you do to resolve them?"

The University started its life in distance education in the mid 60's because of a need to upgrade teachers. Some of our teachers were practising without university degrees. So we started, because it seemed the closest thing to a classroom, with video-tape production. We had eight community learning centres around the Province supplied with resource materials. And the teachers came in, and actually took the courses by video.

What we found was, of course, that the cost of production meant that we couldn't do as many courses as were required at the time. So, very soon after the mid-'60's we developed a fairly significant correspondence section. And that allowed us to increase our community learning centres from 8 to 45.

In addition to the other kinds of resources that were based in the centres - books, VCR equipment, etc. - there was a tutor assigned to each centre. That tutor would have been someone who had completed a degree, but was not a Ph.D.

We had a fair bit of attrition. The turn-around time problems which everybody faces were difficult; and they were particularly difficult in the winter and in some of our more remote centres. We also had a bit of conflict, we found, between the tutors and the primary instructor at the University, because the tutor was probably playing a slightly larger role than the instructor had hoped.

So we, like the University of the West Indies, were in the field early enough that when the Canadian government was looking for someone to do something so silly as

to use satellites in the use of distance education, we became involved in what was known as the Hermes satellite trials. That trial was one-way video, and two-way audio.

It was fairly extensively evaluated by an outside team. We discovered, yet again, that real time - particularly broadcast video - was not a mechanism that we were going to be able to support in the long run for such a small population. We will frequently have 20 or 30 students in a class. We are not up into the 100's that make broadcast video a viable possibility.

We also discovered that really 95% of what we could or wanted to do, could be done with supplemented audio; so we adopted the audio system as a primary delivery mode outside of print. What it gave us was an immediacy of interaction. And, it was certainly very well received - both by the instructors and by the students. It allowed us to give guidance, administrative support, logistical support to students who were not easily accessed by other means.

In the mid 80's, moving on from an increase in print and audio type of courses, the telewriter came on to the scene. We had been having trouble getting from courses that were easily print-based to courses like math, business, science, research methods. And the arrival of an interactive blackboard certainly facilitated programming in that area.

We have come back round to the scenario of using video tapes also as a supplement to the basically print and audio-based programmes. We use video fairly sparingly. We use it, for instance, for a chemistry lab demonstration or a demonstration of some physics' principles.

With the advent of desk-top publishing life in the print arena became a lot simpler, and we were able to broaden the scope of things we could do because of the increased speed with which we could update or revise our manuals and get them in the field. The situation today is that we have a home-based package that goes out to the student, with a shrink wrapped, three-hole punched manual that would tell her or him how to work through the course. The student has assignments, problems, probably some additional information over and above the textbook, a set of instructions on how to relate to the video tape. If she is in a science course, say, information about what to do with her home-based lab kit, - all the usual kinds of things for a print manual.

The manual, the video tape, lab kits, and anything else relevant go off in a package to the students. They can pace themselves to a certain extent. Depending on the type of course they are either going to be regulated by the teleconference sessions that happen once a week, or if they tend to opt more for the correspondence-based course, they are regulated only by themselves.

We have been unable to get very far in the use of computer conferencing. Part of the reason is undoubtedly the lack of familiarity with computers in the rural settings which characterize our environment. We had a hard enough time, I have to tell you, introducing the telewriters - simple as the function of the telewriter is - into our sites. There are also other factors, certain people who have computers don't have modems; so the University probably would have to make a significant input into the provision of modems. And it is really only recently that we have had universal access to Datapac which makes computer interaction a reasonable and viable alternative.

So, again I would like to say that we have tried to make reasonable and sensible choices about how to confront things. But, I think like many distance education groups, the type of network or the type of delivery that one decides upon is weighted heavily by ones client group, its needs, what facilities are available, and what are the problems to be overcome.

Institutional Considerations

One of the things I want to talk a little about before I get into some of the ways that we tackle the various issues related to the students and the professors, are some of the needs of the institution. They have to some extent, I think, been already addressed already by Professor Lalor in his opening remarks to this session.

Our University had to decide, (and the University of the West Indies is also obviously deciding), what should be its stand with respect to the general government directions in education. We are probably about three steps further along the path here in moving from what was in essence a university-based unit, through cooperating with the community colleges and other post-secondary agencies; and, in the last few years, having gotten that far with the Department of Education saying, "Well, you know, we have all of these high school needs; and what are you going to do to help us? You are the best distance education thing we have in the Province right at the moment; so how do you propose to relate to the secondary system?"

I think that this is a fairly significant step for any university, because it does have implications for your budget, for your staff, for what you are going to be able to do with a unit like, say, UWIDITE. Now from a certain perspective, being a dual mode university and having a separate unit, as ours is, that deals with distance education will really facilitate any motion in that direction, because the unit can become a design, production and delivery system. It can relate to any set of content people that it wishes to. There is the university group, or there is the high school group which comes with a curriculum it wishes to be changed to a distance format.

Within our own University, so that we could legitimize what we were actually doing, our distance education group has been given a new designation. It is known as "TETRA". Its mandate is indeed to broaden what we do to include activities outside the basic university delivery.

One of the biggest institutional needs to be addressed with respect to universities, and any educational agency, is the maintenance of academic standards. I think the concern that quality education can be delivered at a distance is becoming increasingly less with the acceptance of distance techniques. Again, as the Professor implied earlier, in a dual mode institution sometimes this is easier, because from the perspective of the University the same courses are taught on campus as off, as is certainly the case in our University. They have to be approved by Senate, the same teachers are used, the same examinations are sat. The problem, of course, is to find the faculty to do it. Our preference is to have distance education programmes prepared, designed, and delivered as extra load for which the faculty is paid for the delivery and the development. This is done in two separate stages, because the development is on a sliding scale depending upon how much production is actually involved.

The other institutional worry of a university, or certainly where we come from, is the lack of library facilities. We use books of readings and readings in manuals. We maintain a certain level of library facilities in our regional centres. We also have a mechanism called "Libline" which is not toll free but is not an expense to the student, which gives access to our principal libraries on the campuses. The campus library has a distance education group that deals with the needs of the distance education students.

I think with respect to the institution, in all fairness to a group like UWIDITE (and obviously great steps are being made along the path here), if the system is expected to support other than university groups a lot of internal policy decisions are needed to make this possible. Even to address the needs of adult learners at the university level, universities, I think, need to address the issue of interdisciplinary degrees, because people already working quite often do not want to be put into the mode "You are going to be physicists at the end or chemists at the end." And that, I feel, is a significant challenge for many universities.

The other thing is to resign yourself to the fact that, if you are going to save money on buildings, then you had best budget for a good delivery mechanism - whatever it is going to be in the end.

Having briefly discussed institutional needs, let me now turn to the general issues of distance education. Again, as I mentioned, you are going to hear these over and over, I am sure, during the next few days. I am simply going to tell you how we address some of them.

Student Support

One of them, referred to by Dr. Irvine earlier today, is the issue of student support. If you do not have adequate student support, you are not going to have students. It may not be quite as critical here yet; I am not that quite sure. But I do know that if

we do not provide adequate student support, our students are going to be taking their courses from the University of Waterloo, or the University of Athabasca, or any of the other agencies that offer university credit courses.

The key to student support is knowing your client and what kind of environment that client is coming from. In Newfoundland (and, again, I think it has contributed significantly to the fact that the primary delivery base is print and audio-teleconferencing), we have a very oral culture. People like to sit around and chat; and that sort of mechanism of learning is very entrenched in our culture. It is also a mechanism that is accepted by the University as one of its means of developing the kinds of cognitive skills that university people want to develop in their clients. The latter are, as we all know these days, not so much interested in acquiring factual information as in the actual development of critical awareness - which is an ongoing concern of all universities. There are other significant ways of doing this; but as I said this is one use of an audio medium - an interactive audio medium is the one that we have chosen.

I think we all need to be particularly aware, which is certainly our experience, of people's socioeconomic conditions. Sometimes it is more important to get people out of their homes and into a group situation. It gives them peer support because, quite frequently, people are studying when other people in their family probably think it is not all that important or necessary; or they are playing a role in their family that mitigates against being able to go off quietly into a room and study. We certainly have had our students support the notion of "the group" at teleconference sites. They like the group dynamic; they like being able to discuss things with their peers; and they also like being able to get together and discuss concepts before they actually go on teleconference programmes.

Equally important, I think, to knowing your client is knowing your own short and long-term mandate. Our short-term mandate when we started was health and university education. But we always knew long-term that we were going to have to provide services to a wide range of educational levels and probably a wide range of literacy levels. We also knew our mandate was not specifically to address the needs of our larger urban regions. It was to make the centralized resources of our educational and health institutions available to rural areas. So again, that was part of the reason for selection of the delivery kind of medium that we have.

As I said, the University started in distance education because of a need to upgrade teachers. We now support a very broad range of activities, and we sit in that range of activities as a distance support team. Whether that is to a university faculty person or to the Department of Education, is irrelevant to us.

What we have found in trying to achieve that kind of base support for all educational activities in the province, is that we really do need to make use of all the infrastructures that are out there by way of human resources. We do have

teleconference coordinators at our sites. But, we pay liberal call upon the adult education teams that happen to be in any of our communities - the extension field workers, the field workers for the Marine Institute. Wherever we can lay our hands on somebody who is vaguely related to education, they are pulled into the net. And I think there is a provincial push through the government to make sure that net meshes together and supports all distance learning as far as we can see it.

We have found that as technology has improved and become more accessible, we can perhaps do with less support people in the field. Because we can deliver things to people's home, we no longer have to have community learning centres equipped with VCR's and what have you. Certainly in Newfoundland, the use of a video tape at home has become a very simple thing. The University used to have continuing studies coordinators in every town. We now only have regional officers. We have a fairly simple method of relating between ourselves at the central delivery site and the regional teams.

For university level students we offer a specific support mechanism and an academic counselling centre. Students have access to it on certain nights of the week by distance means, primarily the telephone. From the technology end, because unlike your system our students are expected to walk in and turn on all the equipment and get it set up, sit down and use it, we provide on-air briefing sessions during their first night of class. They are provided with a video tape at the sites on the equipment's use. We rewrite any manuals that come in, because we have found that what is produced by groups such as computer companies is totally unintelligible to anybody who hasn't already got a degree in computer programming - including myself, I hasten to point out. We also keep little sets of quick pointers of what to do if you get into trouble.

On our network, operators monitor programmes at all times so that if any specific sites do get in trouble, they have someone whom they can turn to.

Administratively, the University has field officers in the regions served. All students are provided with manuals which include work activities and community resource lists. And, as I mentioned before, they do have access to library facilities.

We periodically conduct a survey of students for changes that they would like to see in the support mechanisms. A general reply is usually, "more, please". And, like all universities, we only have a certain capacity to respond to that, but we do try the best we can. And we, of course, obviously use the audio teleconferencing network as part of the support mechanism for our students to provide guidance, updating, clarification, etc.

Management and Staffing

One of the other items that we were asked to talk a little bit about was management and staffing of networks such as this. I think the best thing that you can have in the management of real time network is, once you have established your plan, to make sure you have a contingency plan. And maybe you should have your contingency plan before you have your plan.

Again, to support our students, we tape all of our programmes. They can be replayed at some point prior to the next class should some technical misfortune hit a site. We use our dial access capacity to give access to students whose sites may be in trouble on our dedicated network. And of course for the print component there are always couriers, if we get in trouble, and fax machines.

Our one word of warning to faculty is not to make our contingency plan their plan. We can be quite nasty to people who don't get their stuff in on time. However, you have to have updates. University courses are like that. Things change. God help the people who were trying to do current Canadian history in the past few months who wrote their course in September 1989 quite conscientiously.

We have found that the one thing that keeps a real time system that does not have a lot of field technical support going, is simple lines of communication - both in-house and also from the field back to the centre.

We have also found that it is absolutely essential to keep all of our equipment uniform. It is a great joke amongst the providers at home that when this great communications network calls to look for more computers, we are not the least bit interested in how large the hard disk is. We just want to know, "Is the status light in the top right-hand corner, and is it green?" Because, when we issue a set of instructions on the network, we don't want to have to say, "Well, your status light might be green. It might be on the bottom; it might be on the top; it might be yellow; or it might be blue; but you have got to find it. You have got to push this button. It could be here or it could be there." This is not the workable scenario in a network that has 10-20 sites on at one time and one hour to get a programme done. An instructor that has an hour of information to get through does not want to spend 10-15 minutes sorting out technical problems.

As to the staffing we find necessary for the level of programmes we carry, this can be divided into three components. There is the network delivery group. And, under that group we have a coordination staff - both centrally and in our sites. We have an operational and technical staff. We replace any equipment that goes faulty. We do not let it be repaired in the field because what happens, of course, is that repairs are done differently and you are back into the "where is the status light" problem. We provide operators on all our programmes because there is absolutely no flexibility in our programme time limits. If you are on at 9 and off 10, you cannot be off at 10

minutes after 10. There is already another programme waiting. We have an instructional design group that helps the instructors from the point of view of the audio type of design. And we have an administrative group, affectionately referred to by the other staff as "work generators" and having no other useful function I can assure you.

On the University's production side, we have all the staff that goes with a television production studio: several cameramen, several editing technicians, a maintenance crew, graphics people, and producers.

In the real time administration side of things, the University has a whole selection of people who process the materials, get courses into the field, line up invigilators, book sites, book rooms, all that kind of activity.

So, as you can see, not only do we divide from the point of production and delivery, but also production and real-time because the people who are involved in production in print or in video tape are in a different time and space than those of us who are rushing along trying to get the programme on at 9 o'clock. And, I think from the perspective of the university instructor that is easier to contend with.

Technology

Just a word or two on technology before I move on from student to instructor support. To stress once again, the need (I think) from the point of view of both the instructors and the learners to have all the technology as uniform as possible. The other primary tenet that we have found in operating a real time interactive network is to maintain a credible working relationship with your common carriers. If your common carriers - your telephone company, your satellite company, your whomever else - find that people are calling in and reporting troubles that are not really the concern of the carrier, they are not going to pay any attention to you.

I am not going to say a lot about technology because certainly I have chatted a lot, or we have chatted a lot, with the UWIDITE group on these items. I think from the perspective of faculty and other people who are going to be involved in production of courses or deciding where universities are going, it is important not to be dazzled by the technology itself. It is very easy to view technology as something other than a means to an end. The trick is to define what you need to do, and what are the basic kinds of things that you need to bring to that agenda to do it. Despite the fact that we do use different types of technology, as I mentioned before, our primary carriers are print and audio. Anything else that we add, enhances that mix. And we certainly approach any of our course meetings with our faculty from that perspective.

Technology cannot be too foreign either to your students. As I have said, we have had trouble introducing the telewriters. Needless to say, it needs to be accessible and

reliable. If you have a nice sophisticated technology that doesn't work, again you will have no students at the end of the year.

Instructor Support

Another issue of concern to all distance educators is how much instructor support can you give to those poor souls that you are trying to get to produce courses for you. Again, I come from a dual mode university. We are seen as a support team to the instructor. The instructor himself or the faculty is seen as the content expert, the content provider. We are involved in process and delivery, not in decisions on content.

So to that end, we begin work with an instructor, once the faculty has agreed to do a course, with a course meeting in which the instructor meets the production staff and the administrative staff and he or she is walked through the various media that would be at his or her disposal. We go through some of the issues that he or she needs to be concerned with - such as copyright clearance and how long that takes, and what they may or may not be able to use in course manuals.

At that time, the instructor is assigned an instructional design person or producer, depending on the type of course, and that person becomes his or her contact with the distance education team - in the general round of trying to keep things fairly simple. Our particular distance education group has about 50 people in it; and you really don't want to be trying to fish through the various components trying to figure out who does what.

Once they are finished with that course meeting, the instructors are "turned over" to the audio people for a briefing in delivery techniques, and how to use the telewriter, and what the telewriter can be used for - those kinds of activities. They are introduced to people like graphic artists, proof readers, desk-top publishing people so that they will get a flavour for what can be done.

They are also given a book, which is affectionately referred to as "a manual on manuals", but is in essence a guide to the preparation of undergraduate distance education courses. In this wonderful book everything you ever wanted to know to be a distance education instructor is contained, including what to put in your manual for your students. That becomes the instructor's Bible, that and his contact person with the production team.

For "training the trainer" in real-time, on-air delivery techniques, we tend to operate on a one-on-one basis with our instructors, again working through what their course is, suggesting the delivery techniques that might best serve their needs. This is a face-to-face session. However, if our instructors are not at the principal campus we brief them utilizing the network.

About one month into the actual delivery of a course, the instructional design person from the audio group contacts the instructor again, sees how he or she is making out, goes over areas that may have been forgotten or may have developed since the course actually 'went live'. Instructors are obviously encouraged to come back and forth as often as they see fit. We do very little actual language training for use on a network. Instructors are pretty much left to their own designs, although we do have a little package that was put out called, I think, "Listening for the Ear", which instructors quite enjoy.

The administrative support is very similar to the kinds of things that are produced here at the University of the West Indies, to which I have referred already.

Course Design

Another area that is obviously of concern is course design. Again this is not the day for a great dissertation on instructional designs. I think I will tell you a little bit about how we select our courses. Being ever practical, we try to pick courses that are going to have some longevity; that an instructor is going to be able to teach for a number of terms. In our situation, the copyright for a course is held by the instructor, not by the institution. So it is important to us that the course stay with us for a few terms. Some instructors are very flexible about letting other instructors use their manuals, providing access to the material; but the copyright is held by the instructor. Again, I think that has arisen from the fact that we are a dual mode institution, as opposed to a single mode distance education type institution that has a different type of orientation. We try, obviously, to select courses that reflect the strength of the University, because for us that is going to have more long-term application.

Our regional officers keep in touch about where our clientele are sited, what courses they have finished towards the completion of their degrees, what courses are still needed in the field, so that we can have a feeling for what we should be trying to develop next. This also gives us a feeling for what are popular courses. Right now, the most popular courses and the most in-demand courses are business - various business courses at all levels. In Canada, it has been decided that the entry level for the nursing profession will be a BN by the year 2000, so right at the moment university level nursing courses are in great demand in all areas of the country. We try to repeat our courses at regular intervals so that people at various stages of getting their degrees can have access at appropriate times.

What are some of the instructional issues? I think many of us working in dual mode institutions have spent a lot of time with instructors, getting them used to the idea that preparation is intense and early. I mean, they have a production team hounding them a year in advance. They are trying to deliver Business 2800 to their class, and at the same time develop it for a different medium to be offered a year hence. First-time distance education instructors also need to be familiar with the needs of an adult learner, as opposed to the more traditional learner that they have been dealing

with - the 18 to 25 year-old who has never been out of a university or formal education setting.

One issue that we have had to address, and I have mentioned I think briefly already, is the lack of library facilities in areas outside of our urban areas. And I have already mentioned briefly some of the ways that we have tried to tackle it.

The other thing that we certainly encourage our instructors to do, is to be more conscious of developing critical awareness skills by methods other than going to a library to compare different types of papers. This is dictated by a fact of life. The libraries are just not there. So, we encourage them to engage their students in what we are pleased to call "action research". Send them out to a hospital. Send them into a business. Send them to interview other professionals in the field. Do their class presentation on the real life versus the book of readings - that kind of thing. And, I think for the most part, we find that a fairly successful mechanism. In the students' manuals, we try to list resources that are available in their regions - professional resources, whatever libraries happen to be available, where the nearest hospital is, all the kinds of things that they may find as useful resources in some of their research.

Again in course design, we try (and I am sure everybody does in his own way) to be particularly aware of the environment from which our students are coming. Different social needs require different course designs. And if you are addressing a rural clientele you are obviously going to approach a course design much differently from the way you might do it in a more urban setting.

We encourage our instructors to maximize the use of technology while minimizing the cost of production. "Think small" is our motto. We use print where we can. Teleconferencing is obviously used for the strength of the interaction. Audio tapes we use on a very limited scale, (and you will hear a lot more about audio tapes from other people) mostly for mastery skills like French labs, or that kind of thing. Video is used when it is important and the telewriter for a common visual space.

Evaluation

Linked to instructional objectives, which for us hopefully are the same on- and off-campus, is the whole issue of evaluation, of which I must point out we do not do enough. I will state that as a leader to my other comments. I mentioned before that our off-campus students are evaluated by the same exam as that given on campus. They are required to do similar numbers of assignments, problems, etc.; so we try to maintain a comparable kind of evaluation from that perspective.

With respect to how we evaluate what we do (always an interesting topic), I don't think I have brought it up here, but we maintain a small question bank that can be used for evaluation of short series. Instructors can select from the database the kinds of questions that they would like to see answered about their course. Their selection

is printed off as a questionnaire and is made available in whatever package they would be using as their support package.

The continuing professional education groups administer very open-ended kinds of evaluations: what would you like to see done? how would you like to see it changed? - not very structured things at all.

The first presentations of university courses are almost considered pilots. This is not to say that they are not well developed; but we know that the minute they go into the field, they are going to have to be changed. So, we certainly brace ourselves for a considerable revision of any course after its first run through.

Major new areas of development are usually assessed by an outside evaluation team. We have just recently put half of our first year university programmes into a distance mode. In recent years our vocational schools became community colleges. So there needed to be a change in orientation from more vocational kinds of activities to more academic kinds of courses. Along with that, there needed to be a more universal first year. To support these initiatives the University has developed 1/2 of its first year academic programmes for distance delivery. This is being offered right now in two locations and is also being assessed by an outside team. They are looking at marks, assignments, success rates. They are also looking at many life factors as they relate to the University. Going to a university is not just study and books. There are all sorts of social factors. So these kinds of issues are being looked at. The students' perceptions of their relationship to their professors; the students perception of their relationship to the University; their ability to make friends; and so on.

Interestingly, half-way through the first year another programme recently evaluated was the high school programme. These students, again being a much younger clientele than we were used to dealing with, gave us no end of worry. The students were given a readiness examination. They were compared to an urban group and a rural group that were doing the same level. In our first year of delivery, the same teacher taught both face-to-face and on the system. So marks were compared. And, fortunately for us, yet again the distance education students shone! We had some formative things that went on along the way. We increased the amount of telewriter pages, interestingly enough.

The other programme that is currently being evaluated, and I can tell you nothing about it because we have just finished the pilot, is the adult basic education science and math programme. Hopefully, the next time I come down to talk to you, I shall be in a position to say a little about it.

I shall conclude at this point having, I think, just about covered the general areas I was asked to address.